https://doi.org/10.5281/zenodo.11260143

Recycled Aggregate Concrete as a Structural Element

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Abstract

The growing engrossment in production, resulting accumulation of demolition waste has led to an exigency for effective debris management and resource conservation. This research mainly aimed to compare the properties of recycled aggregate concrete (RAC) with natural aggregate concrete (NAC). Through a series of experiments, different concrete mixtures were made using different ratios of RAC and NAC, and the compressive strength of each mixture was determined. The result shows that recycled coarse aggregate behaves similarly to natural aggregate. Although RAC exhibited higher water absorption due to the presence of cement mortar residues. Moreover, the impact and abrasion values are considerable meeting the required standards for concrete pouring. Consequently, when RA replaces 25% NA in the concrete mix the compressive strength is interchangeable with that of 100% NA, propounding substitution is an approach for reducing debris and preserving natural aggregate. The main aim of this research is to promote sustainable construction practices, minimise waste materials, and mitigate the environmental impact of the construction industry with the help of recycled aggregate.

Keywords: *construction waste management, debris management, natural aggregate concrete, recycled aggregate concrete*